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# *Lycianthes jalicensis* (Solanaceae), a New Species from Jalisco, Mexico

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**ABSTRACT.** A new species of *Lycianthes* from Jalisco, Mexico, is described and illustrated as *L. jalicensis* E. Dean.

Comprising 150–200 species (D'Arcy, 1997), *Lycianthes* (Solanaceae) has both Old World and New World representatives; however, its center of distribution, and the majority of its taxa, are found in the New World (from Mexico to Argentina). The genus is generally thought to be a close relative of *Capsicum* (Olmstead & Palmer, 1992; Bitter, 1919) but differs from that genus in having poricidally dehiscent anthers. While in Mexico in 1991, I collected specimens of a new species of *Lycianthes* in the state of Jalisco, Mexico. After examining other specimens of the species from several different herbaria, I am able to describe it here.

The terminology used to describe the branching pattern of the species follows that of Child and Lester (1991). The erect portions of the plants of this species arise from a horizontal rhizome. The erect plant body has a basal segment with spirally arranged leaves, which is considered the first sympodial unit of the plant; that segment terminates in a bud or a flower. Thereafter, all branches are short sympodial units consisting of two leaves and a flower. The upper branching can be dichasial or monochasial; if it is unichasial, the leaf arrangement is geminate.

As described for other *Lycianthes* spp. (Dean, 1994), the flowers of *L. jalicensis*, which are usually angled upward from the stem, open and close each morning for several days in a row (usually 3 days). The corolla is sympetalous, with the limb divided into five lobes, which are connected by membranous tissue. The shape of the corolla can be described as campanulate, but the pressure of opening can tear the corolla membrane by the last day of anthesis, allowing the corolla to open more fully. The five stamens of the androecium are unequal, with the lowest stamen longest, and of about the same length as the style, while the other four stamens are substantially shorter. The uppermost two anthers, or both the uppermost and lateral anthers,

usually dehisce on the first day of anthesis, with the lowermost anther dehiscing on the third day the flower opens.

Bees that visit the flowers of *Lycianthes jalicensis* buzz the anthers to extract the pollen, as has been described for various *Solanum* species (Buchmann et al., 1977). The population that I visited near El Tuito, Jalisco, had open flowers during our first visit, which was from 7:00 AM (sunrise) to 8:16 AM, and bees were already buzzing the flower anthers. When the same population was visited at 11:00 AM, the flowers were closed. The insects that we observed and collected belonged to the genus *Ptiloglossa* (Colletidae).

***Lycianthes jalicensis* E. Dean, sp. nov.** TYPE: Mexico. Jalisco: S of Puerto Vallarta and N of El Tuito, along hwy. 200, 20.3 road km S of Playa Mismaloya, W side of the road, along footpath that follows small drainage, 500 m, 13 Aug. 1991, *E. Dean & T. Starbuck* 248 (holotype, DAV; isotypes, MEXU, UC, XAL). Figure 1.

Frutices e rhizomatibus orientes. Trichomata simplicia. Inflorescentiae flores 1–7. Corolla alba, campanulata; filamentis staminum inaequalibus, 4 brevibus, 1 longiore. Fructus ruber, rotundus.

Clonal *shrubs* from horizontal rhizomes, to 2 m tall. *Indument* of white, simple, acute, several-celled trichomes. Aboveground *stems* green to purple with vertical purple striations, the nodes often a darker purple; first (vertical) stem segment often elongate, comprising up to  $\frac{3}{4}$  of total plant height, but sometimes short and branched from near ground-level; sympodial growth extensive, the oldest segments 4.5–8.5 cm long, 1–3 mm wide. *Stem pubescence* often sparse, antrorse to spreading, 0.25–1 mm long, the stem usually glabrate with age. *Sympodial leaves* membranaceous with arcuate venation, the sympodial units difoliate, usually geminate, sometimes appearing unifoliate if subtending dichasial forks, the total leaf length 5–17 cm long, 1.5–7.5 cm wide, the length of the larger leaf of a geminate pair 2–4 times longer than that



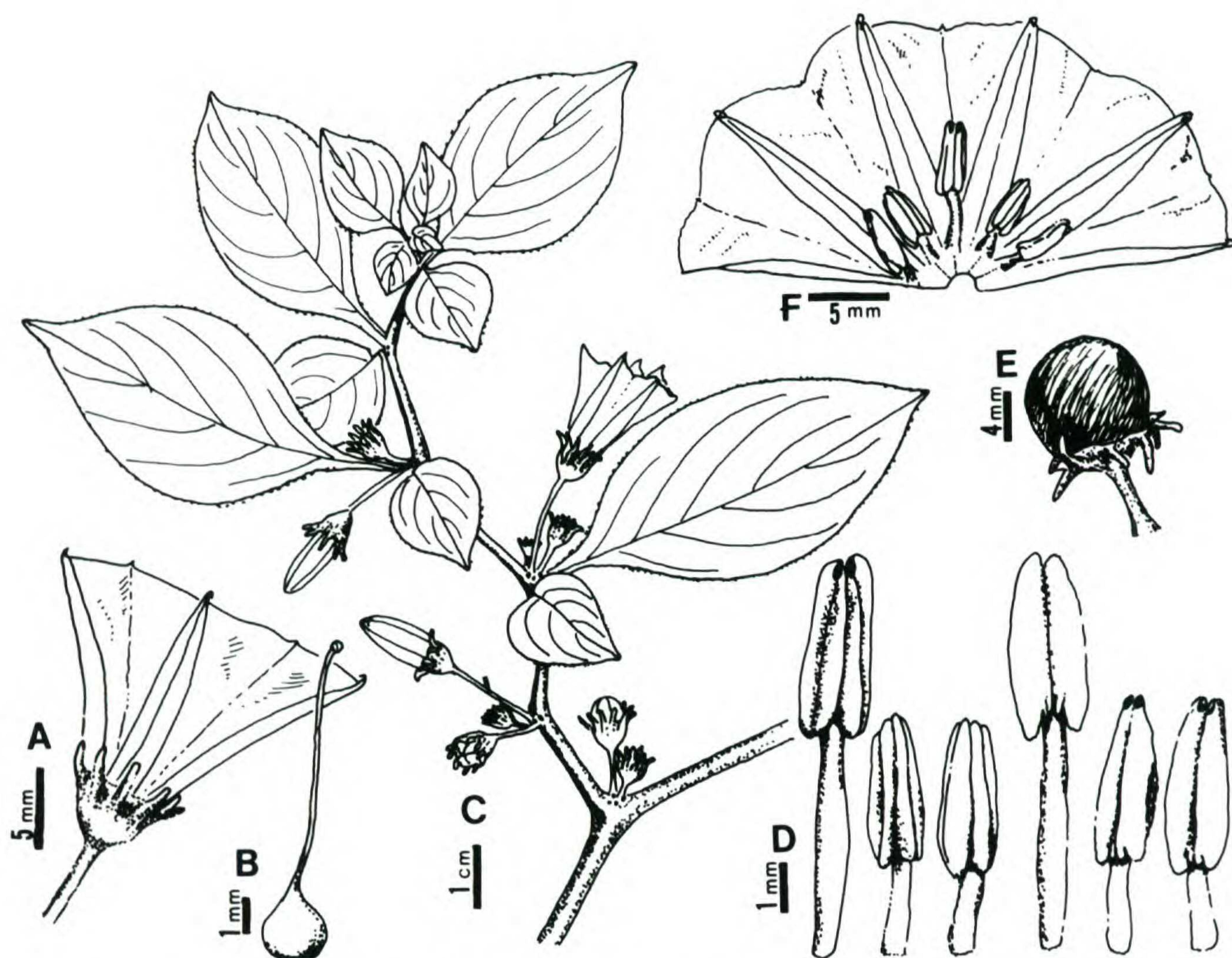


Figure 1. *Lycianthes jalicensis* E. Dean (from E. Dean & T. Starbuck 331). —A. Open flower as viewed from the side. —B. Gynoecium. —C. Flowering sympodia. —D. Androecium, showing views of (left to right) adaxial side of lowest stamen, adaxial side of one lateral stamen, adaxial side of one upper stamen, abaxial side of lowest stamen, abaxial side of one lateral stamen, and abaxial side of one upper stamen. —E. Fruit. —F. Dissection of corolla showing stamen insertion. (Drawn by the author.)

of the smaller leaf; the lamina of the larger leaf of the geminate pair ovate-elliptic to obovate, the tip acute to acuminate, the base of the more proximal leaves widely cuneate to attenuate (sometimes unequal), the petiole to 2 cm long, the base of the more distal leaves more cuneate and sessile; the lamina of the smaller of the geminate pair ovate, tip short-acuminate, base truncate, unequal, nearly sessile (petiole to 3 mm long). *Leaf pubescence* usually sparse, except on youngest leaves, 0.25–1 mm long, the trichomes of the adaxial side erect, spreading, the marginal ciliate, those of the abaxial side appressed ascending, concentrated along the veins. *Inflorescences* 1–7-flowered, terminating the stem units, the pedicels appearing to be in the axils of the geminate leaf pairs or the single leaves of dichasial forks, the flowers of a group maturing sequentially, only one flower open at a time in each inflorescence, that flower usually angled upward from the stem. *Pedicels at anthesis* green to purple, usually glabrous or nearly so, rarely puberulent

with hairs 0.25 mm long, erect in bud, becoming curved as corolla emerges, straight to slightly curved when flower opens and 0.5–2.5 cm long. *Calyx at anthesis* pale green, with darker green ribs and teeth, usually glabrous or nearly so, cup-shaped, 2.5–4.0 mm long, 2.5–4.5 mm wide, the base and sides rounded, the margin membranous; calyx ribs ten, the ribs prominent in living material, extended into stout teeth-like projections with wide bases and acute tips, the teeth developing early in bud, first curved, quickly becoming erect and 1–5.5 mm long. *Corolla* sympetalous; basal portion inserted in calyx, campanulate, ca. 5 mm long; limb campanulate, with five valvate lobes connected nearly to their apices by the corolla membrane, each lobe lanceolate to oblanceolate, 0.6–2 cm long, 2–3.5 mm wide, white on adaxial side, green on abaxial side, opening and closing each morning; pubescence of corolla concentrated at lobe tips, the lobes themselves often glabrous or with very short hairs (0.1 mm long) abaxially. *Androecium* of five



stamens, the lowermost the longest, with filament 4–6 mm long and anther 4–6 mm long, the other four stamens much shorter, with filaments 0.5–1.5 mm long and anthers 4–5.5 mm long; filaments pale green, glabrous, compressed dorsiventrally, those of the short stamens curved outward; anthers light yellow, anther of the long stamen oblong with lateral pores that dehisce toward one another on the adaxial face, anthers of the short stamens lanceolate with nearly terminal pores on the abaxial face. *Gynoecium* of two united carpels; ovary widely ovoid 2–2.5 mm long, the ovules 60–100; style slightly curved downward, 6.5–11 mm long; stigma yellow-green, curved upward, oblong-capitate, ca. 0.5 mm long. *Fruit* a globose berry without sclerotic granules, green when immature, red when mature, 0.4–1.2 cm diam.; calyx in fruit expanded and often plate-like, 1.5–3.5 mm long, 3.5–8 mm diam., at length separating from the berry; calyx teeth in fruit curved upward, often broken, 1–3 mm long; pedicel in fruit 1–3.5 cm long; seeds depressed-ovate in outline, flat, 2.5–3 mm long, ca. 2 mm wide, tan to light brown, with thin margin ca. 0.25 mm wide. *Chromosome number*:  $n = 12$  (information provided on *Iltis* 29181).

*Distribution.* In humid, seasonally dry, tropical subdeciduous forests, often near drainages, state of Jalisco, Mexico, 350–1100 m.

*Lycianthes jalicensis* flowers from July to December and produces fruits from August to December (possibly later). It can be distinguished from other *Lycianthes* by its combination of shrub habit, simple white trichomes (usually sparse), 1–7-flowered inflorescences, white campanulate corollas, unequal stamens, red round fruit, and tan to light brown flattened seeds. When fresh, the calyx has a distinctive rounded shape with very regular, equally inserted teeth that have stout, broad bases and acute tips. The collection *Iltis* 29181 is included in the description of the species above; however, it differs from other specimens that I examined in its much denser pubescence.

The species has often been misidentified as *Lycianthes stephanocalyx* (Brandegge) Bitter, due to its sometimes few-flowered inflorescences and white, campanulate flowers. *Lycianthes stephanocalyx* differs in having an untoothed calyx, equal and fused stamens, and ovoid fruit. In addition, *L. stephanocalyx* is a rhizomatous perennial herb, whereas *L. jalicensis* is a woody plant. *Lycianthes jalicensis* has sometimes been identified as *L. surotatensis* Gentry. *Lycianthes surotatensis* differs in having glandular pubescence, a rotate corolla with

green markings at the throat, and a more cuneate calyx base.

*Paratypes.* MEXICO. **Jalisco:** 24 km by road S of Autlán on road to Barra de Navidad, 760 m, 19 Sep. 1983, W. Anderson 12717 (CAS, NY); Mpio. Casimiro Castillo, en la Calera, entre Puerto Los Mazos y el Tigre, 600–800 m, 24 Sep. 1988, M. Cházaro B. et al. 5674 (CAS, WIS); 5.6 km por camino al W de Puerto Los Mazos, en el lado norte del “Cerro Autlán,” 10 km distancia aérea al N de Casimiro Castillo, 19°41′30″N, 104°25′W, 1050 m, 6 Jan. 1985, T. Cochran et al. 10849b (WIS); Mpio. Casimiro Castillo, Sierra de Manantlán, 6–8 km al N de C. Castillo, 19°39′15″N, 104°26′15″W, 800–1000 m, 5 Dec. 1987, R. Cuevas & G. López 2902 (WIS); Casimiro Castillo, 19°36′43″N, 104°25′32″W, 400–500 m, 25 Sep. 1988, R. Cuevas G. 3205 (WIS); S of Puerto Vallarta and N of El Tuito, along hwy. 200, 20.3 road km S of Playa Mismaloya, W side of the road, along footpath that follows small drainage, 500 m, 27 Nov. 1991, E. Dean & T. Starbuck 331 (DAV, UC, XAL); “Arroyo de Tacubaya,” at base of “Cerro La Petaca,” 1–4 km E of Casimiro Castillo, ca. 20 km SSW of Autlán, 19°37′N, 104°26′W, 350–500 m, 19 Sep. 1978, H. Iltis et al. 305 (WIS); S- and SE-facing midslopes and shoulders of “Cerro La Petaca,” along trail to El Durazno, 5–10 km ESE of Casimiro Castillo, 19°33′–35′N, 104°22′–24′W, 900–1100 m, H. Iltis et al. 348 (WIS); 1 km W of El Divisadero (1 km W of Villa Guerrero), 18 km ESE of Tomatlán, 19°53′N, 105°05′W, 350 m, 14 Jan. 1979, H. Iltis & M. Nee 1637 (WIS); next to Mexico 80 on N-facing slope of Sierra de Autlán (but SW of Sierra de Manantlán, NW-end), ca. 1.5 km W of Puerto Los Mazos, 9 km (by air) SSW of Autlán, 19°42′N, 104°25′W, ca. 1350 m, 20 June 1984, H. Iltis 29181 (CAS); Reserva Biosfera Sierra de Manantlán, La Calera, just NW of km 188 marker on Autlán–Manzanillo hwy. (Mex. 80), 9 km (by air) NNE of La Resolano (Casimiro Castillo) and ca. 16 km SSE of Autlán, 19°40′20″–55″N, 104°24′00″–25′05″W, 800–1100 m, 10 Mar. 1992, H. Iltis et al. 31037, 31058 (WIS); Quimixto, trail from San Pedro el Tuito, 60 m, 2 Dec. 1926, Y. Mexia 1243 (UC); Santa Cruz de Vallarta, 700 m, 11 Dec. 1926, Y. Mexia 1286 (CAS); Mpio. Casimiro Castillo, 15 km al SW de Autlán, Barranca del Tecolote, 19°37′20″N, 104°23′15″W, 800–900 m, 22 July 1987, A. Vázquez 4521 (WIS).

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